Excellence in Research: Dr. Carol Miller

Dr. Carol Miller's nomination for the NFP Excellence in Research award is based on her success in creating an interdisciplinary research program that proactively addresses high priority fire and fuels management needs – exactly fitting NFP core principles of collaboration, priority setting, and promotion of accountability.

Dr. Miller's collaborative research program is truly impressive. Over just the past three years, 18 of her 19 NFP studies were collaboratively developed with four universities (Idaho, Montana, Arizona, and Montana State) and 40 different National Forest and National Park Service units, including 17 Fire Management Units.

As an ecologist with a strong modeling background, Dr. Miller has collaborated with social scientists to develop a new and deeper understanding about the social dynamics that strongly affect wildland fire and fuels management. To develop this collaborative network, Dr. Miller has effectively leveraged limited NFP funds to significantly expand this program.

Setting priorities and promoting accountability require understanding the nature of wildland fire and fuels, and then using analytical tools to estimate and explain the consequences of various alternative actions. Dr. Miller's research program is building a solid foundation of understanding about how fire and fuels vary over long timeframes and across landscapes.

She and her staff designed and built two decision support tools: BurnPro, which allows managers to analyze where fire is most likely to occur, and the Fire Effects Planning Framework (FEPF), which allows managers to anticipate the potential consequences of fire and continued fire suppression to ecological and socio-economic values. Both tools were developed in collaboration with managers, utilizing local knowledge.

Both BurnPro and FEPF significantly help managers document how decisions are made and then communicate with the public about different options and consequences. Dr. Miller's research program combines ecological and social science to understand the needs of fire managers in fulfilling all four goals of the NFP:

- **Improving prevention and suppression**. Both BurnPro and FEPF help managers avoid using suppression resources on fires that pose little or no risk, thus significantly improving preparedness planning.

- **Reduce hazardous fuels**. By identifying areas most likely to burn in a wildfire, BurnPro provides critical information for prioritizing fuels reduction. FEPF identifies where values are at greatest risk from accumulated hazardous fuels and is being used by the Bitterroot and Sierra NFs to prioritize and plan fuels reduction projects.

- **Restore fire-adapted ecosystems**. BurnPro, while still under development, is being used in three national parks (Sequoia-Kings Canyon, Yosemite, and Great Smoky Mountains) and two Forest Service wilderness areas (Selway-Bitterroot and Gila) to evaluate and revise fire management plans that aim to restore healthy, diverse, and resilient ecological systems. BurnPro is also being used to help understand the role of indigenous cultures and their use of fire in creating these landscapes.

- **Promote community assistance**. Dr. Miller's work has already greatly increased local capacity to accomplish hazardous fuels reduction by developing tools that build upon existing data and use software that is already familiar to fire managers. Outside of this, these tools are recognized for their value in communicating options and consequences to the public.

Dr. Miller's research pr ogram is a true "success story ," showing a profound commitment to and success in improving the proactive management of fire and fuels.